CLAIMS

1. A gas turbine engine, comprising:

a compressor compressing air;

a combustor to burn fuel in the compressed air compressed by the compressor;

a turbine operated by expansion of combustion gas from the combustor, the turbine operating the compressor in association; and

a cooling plate provided on a stationary section in the vicinity of a turbine disc in the turbine, the cooling plate extending in a radial direction of the turbine disc so as to be opposed to a side surface of a rim of the turbine disc in a manner such that the opposing surface of the cooling plate is close to the side surface of the rim, wherein

a cooling passage is formed between the opposing surface of the cooling plate and the side surface of the rim wherein a portion of the compressed air can flow as cooling air through the cooling passage.

2. The gas turbine engine according to claim 1, wherein

the opposing surface of the cooling plate is substantially in parallel to the side surface of the rim.

3. The gas turbine engine according to claim 1, wherein

when a distance between a turbine stator and a turbine rotor both constituting the turbine in its axial direction is defined as S, and a distance between the turbine rotor and the cooling plate in the axial direction of the turbine is defined as Sc, the following relation between the distances is established as:

Sc/S=0.1 to 0.2.

4. The gas turbine engine according to claim 3, further comprising:

a flange which is provided on the turbine stator and which extends to approach a tip end of the cooling plate; wherein

when a minimum distance between a tip end of the flange and the tip end of the cooling plate is defined as Sc2, the following relation between the distances is established as:

Sc2/S≥0.2.

5. The gas turbine engine according to claim 4, wherein

when a minimum distance between the tip end of the flange and the tip end of the cooling plate in a radial direction of the turbine is defined as Src, and a distance between a center of the rim of the turbine disc and a center of the gas turbine engine is defined as Ra, the following relation between the distances is established as:

Src/Ra≥0.005.

6. The gas turbine engine according to claim 3, wherein

an angle formed between the turbine rotor and the cooling plate in a meridian plane of the gas turbine engine is 10° or less.

7. A gas turbine engine, comprising:

a compressor compressing air;

a combustor to burn fuel in the compressed air compressed by the compressor;

a turbine operated by expansion of combustion gas from the combustor, the turbine operating the compressor in association;

a cooling plate provided on a front stationary section in the vicinity of a turbine disc in the turbine, the cooling plate extending in a radial direction of the turbine disc so as to be opposed to a front surface of a rim of the turbine disc in a manner such that the opposing surface of the cooling plate is close to the front surface of the rim;

a front cooling passage formed between the opposing surface of the front cooling plate and the front surface of the rim wherein a portion of compressed air as cooling air can flow through the front cooling passage;

a rear cooling plate provided on a rear stationary section in the vicinity of a rear side of the turbine disc, the rear cooling plate extending in a radial direction of the disc so as to be opposed to a rear surface of the rim in a manner such that the opposing surface of the rear cooling plate is close to the rear surface of the rim; and

a rear cooling passage formed between the opposing surface of the rear cooling plate and the rear surface of the rim wherein a portion of the compressed air as the cooling air can flow through the rear cooling passage.

8. The gas turbine engine according to claim 7, wherein

the opposing surface of the front cooling plate is substantially in parallel to the front surface of the rim, and

the opposing surface of the rear cooling plate is substantially in parallel to the rear surface of the rim.